Data Validation Report

Project/Site Name: Omega Chemical OU1 2004 Indoor Air Sampling

Sample Delivery Group (SDG): 05055B

Parameters: Volatiles

Method: 524.2

Laboratory: USEPA Region 9 Laboratory

Samples:

Sample ID	Lab Sample ID	Collection Date	Matrix
OC1-OW8A-W-0-40	0502034-01	02/23/05	Water
OC1-OW8B-W-0-41	0502034-02	02/23/05	Water
OC1-OW6-W-5-42	0502034-03	02/23/05	Water

Introduction/Summary

This data review report covers the sample delivery group and associated samples listed on the cover sheet. The analyses were per USEPA Method 524.2. The quality assurance and quality control procedures (QA/QC) were per project specific sampling and analysis plan.

This review is based on the method and project approved QA/QC procedures and EPA data validation functional guidance; the following subsections correlate to these guidelines. The sections detail noted deviations if any. Tables summarizing all data qualification flags are provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols (P) or is of a technical advisory nature due to sample matrix (A).

Data qualifiers, if any, are summarized at the end of this report.

I. Holding Times

Samples were analyzed within 14 days (7 days if unpreserved) of collection as required.

II. GC/MS Instrument Performance Check

Instrument performance was checked prior to initial calibration and calibration verification. All ion abundance requirements were met for BFB as listed below:

m/z	ION ABUNDANCE CRITERIA
50	15.0 - 40.0% of m/z 95
75	30.0 – 60.0% of m/z 95
95	Base peak, 100% relative abundance
96	5.0 - 9.0% of m/z 95
173	Less than 2.0% of m/z 174
174	50.0 – 120 % of m/z 95
175	5.0 - 9.0% of m/z 174
176	95.0 - 101.0% of m/z 174
177	5.0 - 9.0% of m/z 176

III. Initial Calibration

An initial five-point calibration was performed using the required concentrations prior to sample analysis.

Percent relative standard deviations (%RSD) were less than 30% for CCCs and less than or equal to 15% for mean RSD for all analytes with no individual analyte %RSD greater than 30%.

Average relative response factors (RRF) for volatile system performance check compounds (SPCC) were equal to or greater than 0.30 (> 0.10 for bromoform, chloromethane, and 1,1-dichloroethane) with the exception of the following:

Calibration Date	Analyte	RRF	Affected Samples	Flag	A or P
03/05/05	Bromoform 1,1,2,2-Tetrachloroethane	0.092 0.126	none	J	P
02/26/05	1,1,2,2-Tetrachloroethane	0.178	OC1-OW8B-W-0-41 OC1-OW6-W-5-42	J	P
03/06/05	1,1,2,2-Tetrachloroethane	0.150	OC1-OW8A-W-0-40	J	P

Second-source calibration verification was not carried out after five-point initial calibration.

IV. Continuing Calibration

Continuing calibration was verified daily before sample analysis and every 12-hours of analysis time using mid-level standards.

The relative response factor (RRF) percent deviations were less than 20% for all CCCs and all calibration analytes were within ±20% of the expected values.

The relative response factors (RRF) for system performance check compounds (SPCC) were greater than or equal to 0.30 (> 0.10 for bromoform, chloromethane and 1,1-dichloroethane). The following had RRFs< 0.30

Continuing Calibration Standard	Analyte	RRF	Affected Samples	Flag	A or P
02/26/05	Bromoform 1,1,2,2-Tetrachloroethane	0.117 0.191	OC1-OW8B-W-0-41 OC1-OW6-W-5-42	J	P
03/04/05	Bromoform 1,1,2,2-Tetrachloroethane	0.095 0.129	none	J	P
03/05/05	1,1,2,2-Tetrachloroethane	0.152	OC1-OW8A-W-0-40	Detects J	P
03/08/05	Bromoform 1,1,2,2-Tetrachloroethane	0.094 0.128	none	J	P
03/09/05	Bromoform 1,1,2,2-Tetrachloroethane	0.088 0.127	none	J	P

V. Blanks

Method blank analysis was performed at the frequency of once for every analytical batch.

The concentrations of analytes in the method blanks were less than the reporting limits, with no detections reported, with the following exceptions:

Blank (date)	Analyte	Concentration	Affected Samples	Flag	A or P
B5B0131-BLK1 (03/04/05)	Naphthalene	0.4	none	Detects BJ	A

There were no field blanks with this SDG.

VI. System Monitoring Compounds

Surrogate compounds were added to all laboratory blanks, LCS, MS/MSD and field samples per project specifications.

All surrogate recoveries were within project specified control limits with the following exceptions:

Sample ID	Surrogate	%R	Flag	A or P
OC1-OW6-W-5-42	1,2-dichloroethane-d4	152 %	none	A

The above sample was also reported diluted. The diluted sample reported 1,2 dichloroethane and it had surrogate recoveries within the project specific control limits. So there is no flag.

VII. Matrix Spike/Matrix Spike Duplicates

The sample B5B0129-MS1 and B5B0129-MSD1 were the matrix spike (MS) and matrix spike duplicate (MSD) for this SDG. All of the percent recoveries and relative percent differences were within control limits for precision and accuracy with the following exceptions:

Analyte	%R MS	%R MSD	RPD	Affected Samples	Flag	A or P
Dichlorodifluoromethane	60 %	82 %	31 %	OC1-OW8A-	J	A
Chloromethane	76 %	104 %	31 %	W-0-40		
Vinyl Chloride	78 %	106 %	30 %	OC1-OW8B-		
Bromomethane	64 %	96 %	40 %	W-0-41		
Chloroethane	82 %	108 %	27 %	OC1-OW6-		
Trichlorofluoromethane	70 %	130 %	26 %	W-5-42		
Acetone	72 %	92 %	24 %			
Dichloromethane	78 %	98 %	23 %			
Trans-1,2-dichloroethene	84 %	106 %	23 %			
Tert-Butyl methyl ether	100 %	124 %	21 %			
1,1-Dichloroethane	84 %	108 %	25 %			
2,2-Dichoropropane	80 %	106 %	28 %			
cis-1,2-Dichloroethene	80 %	110 %	32 %			
2-Butanone	72 %	105 %	37 %			
Bromochloromethane	84 %	108 %	25 %			
Chloroform	78 %	106 %	27 %			
1,1,1-Trichloroethane	144 %	100 %	36 %			
1,1-Dichloropropene	70 %	92 %	27 %			
Carbon Tetrachloride	56 %	102 %	54 %			
Trichloroethene	134 %	128 %	3 %			
1,2-Dichloropropane	144 %	100 %	36 %			
Dibromomethane	152 %	110 %	32 %			

Bromodichloromethane	166 %	114 %	36 %			
Cis-1,3-Dichloropropene	156 %	108 %	36 %			
Trans-1,3-dichloropropene	162 %	116 %	33 %			
1,1,2-Trichloroethane	142 %	100 %	35 %			
Toluene	76 %	96 %	23 %			
1,2-Dibromomethane	84 %	106 %	23 %			
Chlorobenzene	76 %	96 %	23 %			
Ethylbenzene	76 %	96 %	23 %			
M&p-Xylene	74 %	93 %	23 %			
o-Xylene	80 %	102 %	24 %			
Styrene	74 %	94 %	24 %			
Bromoform	78 %	96 %	21 %			
Bromobenzene	80 %	100 %	22 %			
1,1,2,2-Tetrachloroethane	78 %	100 %	25 %			
1,2,3-Trichloropropane	78 %	100 %	25 %			
Propylbenzene	76 %	94 %	21 %			
1,3,5-Trimethylbenzene	74 %	94 %	24 %			
tert-Butylbenzene	74 %	94 %	24 %			
1,2,4-Trimethylbenzene	72 %	94 %	27 %			
sec-Butylbenzene	68 %	88 %	26 %			
1,3-Dichlorobenzene	70 %	90 %	25 %			
1,4-Dichlorobenzene	58 %	88 %	41 %			
p-Isopropyltoluene	68 %	90 %	28 %			
1,2-Dichlorobenzene	72 %	92 %	24 %			
Butylbenzene	64 %	86 %	29 %			
1,2-Dibromo-3-chloropropane	58 %	92 %	45 %			
1,2,4-Trichlorobenzene	62 %	88 %	35 %			
Hexachlorobutadiene	60 %	78 %	26 %			
Naphthalene	58 %	86 %	39 %			
1,2,3-Trichlorobenzene	58 %	86 %	39 %			

VIII. Laboratory Control Sample (LCS)

At least one laboratory control sample per analytical batch was analyzed.

All percent recoveries were within project specified control limits for precision and accuracy, with the following exceptions:

Laboratory Control Sample ID	Analyte	%R	Affected Sample	Flag	A or P
B5B0131-BS1	Dichlorodifluoromethane Chloromethane Tert-Butyl methyl ether	68 % 64 % 26 %	none	J	P
B5C0002-BS1	Acetone	42 %	OC1-OW8A-W-0-40	J	P
B5C0049-BS1	Chloromethane Acetone Tert-Butyl methl ether	68 % 65 % 26 %	none	J	P

	1,2,3-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene	62 % 32 % 62 %			
B5C0057-BS1	Tert-Butyl methl ether Naphthalene	28 % 68 %	none	J	P

IX. Internal Standards

Internal standards were added to all calibration standards, LCS, samples and blanks.

All internal standard retention times were within ±30 seconds of the retention times of the latest daily calibration standard.

All internal standard area counts were within -50 percent to 100 percent of the midpoint of the initial calibration standard.

All retention times and internal standard area counts were within project specifications for precision and accuracy.

X. Compound Quantitation and Reporting Limits

Compound quantitation algorithm was verified to be correct.

The MDLs have been provided by the laboratory on the sample reports along with the reporting limits. The laboratory has established method detection limits (MDLs) per 40 CFR Part 136 Appendix B. The laboratory MDLs are found to be consistent with project needs.

XI. Tentatively Identified Compounds (TICs)

Sample OC1-OW8A-W-0-40 had 1,4 dioxane, two types of benzene substituted as tentatively identified compounds. And sample OC1-OW6-W-5-42 had an unknown hydrocarbon as a tentatively identified compound.

XII. System Performance

QC data at large indicate acceptable performance.

XIII. Overall Assessment of Data

All data were found to be acceptable per specifications as noted above under introduction/summary with the exception of samples and analytes listed in the table at the end of this report, if any.

Omega Chemicals OU1 Volatiles - Data Qualification Summary - SDG 05055B

SDG	Sample ID	Analyte	Flag	A or P*	Reason
05055B	OC1-OW8A-W-0-40 OC1-OW8B-W-0-41 OC1-OW6-W-5-42	1,1,2,2-Tetrachloroethane	J	P	Initial Calibration RRF
05055B	OC1-OW8B-W-0-41 OC1-OW6-W-5-42	Bromoform 1,1,2,2-Tetrachloroethane	J	P	Continuing Calibration RRF
05055B	OC1-OW8A-W-0-40	1,1,2,2-Tetrachloroethane	J	P	Continuing Calibration RRF
05055B	OC1-OW8A-W-0-40 OC1-OW8B-W-0-41 OC1-OW6-W-5-42	Dichlorodifluoromethane Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane Acetone Dichloromethane Trans-1,2-dichloroethene Tert-Butyl methyl ether 1,1-Dichloroethane 2,2-Dichoropropane cis-1,2-Dichloroethene 2-Butanone Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachloride Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane Cis-1,3-Dichloropropene	J	A	Matrix spike/Matrix spike duplicate %R and/or RPD

		Trans-1,3-dichloropropene 1,1,2-Trichloroethane Toluene 1,2-Dibromomethane Chlorobenzene Ethylbenzene M&p-Xylene o-Xylene Styrene Bromoform Bromobenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane Propylbenzene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene p-Isopropyltoluene 1,2-Dichlorobenzene Butylbenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene			
05055B	OC1-OW8A-W-0-40	Acetone	J	P	LCS low %R

*P-Flag is due to deviation from criteria limits
A- Flag is expected to be due to sample matrix effects

Omega Chemicals OU1 Volatiles - Blanks Data Qualification Summary - SDG 05055B

No data has been flagged due to blank sample results.

Data Validation Report

Project/Site Name: Omega Chemical OUI February 2005 Split

Sample Delivery Group (SDG): 05055B

Parameters: Semivolatiles

Method: EPA 8270C

Laboratory: EPA Region 9 Laboratory

Samples:

Sample ID	Lab Sample ID	Collection Date	Matrix
OC1-OW8A-W-0-40	0502034-01	02/23/05	Water
OC1-OW8B-W-0-41	0502034-02	02/23/05	Water
OC1-OW6-W-5-42	0502034-03	02/23/05	Water

Introduction/Summary

This data review report covers the sample delivery group and associated samples listed on the cover sheet. The analyses were per USEPA Method 8270C. The quality assurance and quality control procedures (QA/QC) were per project specific sampling and analysis plan.

This review is based on the method and project approved QA/QC procedures and EPA data validation functional guidance; the following subsections correlate to these guidelines. The sections detail noted deviations if any. Tables summarizing all data qualification flags are provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols (P) or is of a technical advisory nature due to sample matrix (A).

Data qualifiers, if any, are summarized at the end of this report.

I. Holding Times

Samples were extracted within 7 days (water) or 14 days (soil) of collection as required. Analyses were performed within 40 days after extraction. All samples were within project specifications.

II. GC/MS Instrument Performance Check

Instrument performance was checked prior to initial calibration and calibration verification. All ion abundance requirements were met for DFTPP as listed below:

m/z	ION ABUNDANCE CRITERIA
51	30.0 - 60.0% of m/z 198
68	Less than 2% of m/z 69
69	0.0 – 100% of m/z 198
70	Less than 2% of m/z 69
127	40.0 - 60.0% of m/z 198
197	Less than 1% of m/z 198
198	Base peak, 100% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 -30.0% of m/z 198
365	Greater than 1% of m/z 198
441	Present, but less than m/z 443
442	Greater than 40.0% of m/z 198
443	17.0 - 23.0% of m/z 442

On March 1, 2005 the instrument performance check was done however criteria was not meet.

Date	M/z	% recovered	Associated Samples	Flag	A or P
03/01/2005	51	28.6% of m/z 198	OC1-OW8A-W-0-40 (200x)	J	P

The sample OC1-OW8A-W-0-40 had very high concentrations of the analyte and so it was diluted and reanalyzed. The date on which the sample was diluted and results reported had a slight deviation from the required GC/MS instrument performance check in that the 51 m/z was not 30-60% of m/z 198 but rather 28.6. The deviation is slight and the sample results are flagged J .. This is a deviation from protocol as the instrument performance check did not meet the required QC check.

III. Initial Calibration

An initial five-point calibration was performed using the required concentrations prior to sample analysis.

Percent relative standard deviations (%RSD) were less than 30% for CCCs and less than or equal to 15% for mean RSD for all analytes with no individual analyte %RSD greater than 30%.

Average relative response factors (RRF) for volatile system performance check compounds (SPCC) were equal to or greater than 0.05.

Second-source calibration verification (SSCV) was carried out once per five-point initial calibration. All analytes were within ±25% of the expected values, with the following exception:

Calibration ID	Analyte	%D	Associated Samples	Flag	A or P
5020035-SCV1	2,4-Dimethylphenol Diphenyl amine 3,3'-Dichlorobenzidine	30.5 % 34.8 % 29.7 %	None	J	P

No further action was recommended since this SDG was only analyzed for 1,4 Dioxane.

IV. Continuing Calibration

Continuing calibration was verified daily before sample analysis and every 12-hours of analysis time using mid-level standards.

The relative response factor (RRF) percent deviations were less than 20% for all CCCs and all calibration analytes were within ±20%.

The relative response factors (RRF) for system performance check compounds (SPCC) were greater than or equal to 0.05.

V. Blanks

Method blank analysis was performed at the frequency of once for every analytical batch.

The concentrations of analytes in the Method Blank were less than the reporting limits, with no detections.

VI. System Monitoring Compounds

Surrogate compounds were added to all laboratory blanks, LCS, MS/MSD and field samples per project specifications.

All surrogate recoveries were within project specified control limits for precision and accuracy with the following exceptions:

Surrogate	%R	Associated Samples	Flag	A or P

1,4-Dioxane-d8 2-Fluorophenol 2,4,6-Tribromopheonl	29% 5% 133%	OC1-OW8A-W-0-40	J	A

The above sample had very high concentrations of 1,4-dioxane suppressing the 1,4-dioxane-d8 recovery. It is flagged to reflect the lack of surrogate recovery since the dilution involved adding 1,4-dioxane.

VII. Matrix Spike/Matrix Spike Duplicates

Sample OC1-OW6-W-5-42 was used for the matrix spike and matrix spike duplicate. The percent recoveries (%R) and relative percent differences (RPD) were within the project specific control limits.

VIII. Laboratory Control Sample (LCS)

At least one laboratory control sample per analytical batch was analyzed.

All % recoveries (%R) were within project specified control limits for precision and accuracy.

IX. Internal Standards

Internal standards were added to all calibration standards, LCS, samples and blanks.

All internal standard retention times were within ±30 seconds of the retention times of the latest daily calibration standard.

All internal standard area counts were within -50 percent to 100 percent of the midpoint of the calibration standard.

X. Compound Quantitation and Reporting Limits

Compound quantitation algorithm was verified to be correct.

The MDLs have been provided by the laboratory on the sample reports along with the reporting limits. The laboratory has established method detection limits (MDLs) per 40 CFR Part 136 Appendix B. The laboratory MDLs are found to be consistent with project needs.

XI. Tentatively Identified Compounds (TICs)

TICs reports were not required for this SDG.

XII. System Performance

The data at-large for target compounds indicate acceptable system performance

XIII. Overall Assessment of Data

All data were found to be acceptable per specifications as noted above under introduction/summary with the exceptions of the samples and analytes listed in the table at the end of this report, if any.

Omega Chemical OUI Semivolatiles - Data Qualification Summary - SDG #05055B

SDG	Sample	Analyte	Flag	A or P*	Reason
05055B	OC1-OW8A-W-0-40	1,4-Dioxane	J	P	Instrument Performance Check
05055B	OC1-OW8A-W-0-40	1,4-Dioxane-d8	J	A	Surrogate Recoveries

*P-Flag is due to deviation from criteria limits
A- Flag is expected to be due to sample matrix effects

Omega Chemical OUI Semivolatiles - Blanks Data Qualification Summary – #05055B

No data is qualified due to blank results.